CLAIMS

1. A method of correcting timing errors when transmitting isochronous data through a packet based communication network in which at least some of the data packets contain timestamps which indicate to a receiver the time at which the data should be processed, the method comprising the steps of;

a) inserting transmission timestamps in isochronous data packets which relate to an absolute time as defined by a transmission clock and which are to be transmitted over a transmission network,

b) receiving the data packets and detecting and temporally recording the transmission timestamps therein,

c) providing a receiver clock which is synchronised in frequency but not necessarily in absolute time with the transmission clock,

d) storing the absolute time of the receiver clock when the first packet containing a transmission timestamp is received,

e) adding a given time offset to the stored receiver clock time, the offset being greater than or equal to the maximum variation in time between successive received data packets, to define the output time of the first of the received data packets

f) subtracting the value of the transmission timestamp in the first received data packet from the transmission timestamp in each subsequently received data packet, and

g), adding the difference between the transmission timestamp of the present data packet and the transmission timestamp of the first data packet to the output time of the first data packet to define the output time of the present packet.

2. A method as claimed in Claim 1 wherein the data is MPEG encoded data and the transmission timestamps are separate from and independent of any MPEG timestamps.

3. A method as claimed in Claim 2 wherein the data is transmitted using the Common Isochronous Packet Format defined in IEC61883.

4. A method as claimed in any preceding claim in which the communication system operates according to an IEEE1394 standard.

5. A method as claimed in any of Claims 1 to 3 in which the communication system operates in Asynchronous Transfer Mode.

6. A method as claimed in any of Claims 1 to 3 in which the communication system operates according to a Universal Mobile Telecommunications System standard.

7. Apparatus for correcting timing errors when transmitting isochronous data through a packet based communication network in which at least some of the data packets contain timestamps which indicate to a receiver the time at which the data should be processed, the apparatus comprising means for inserting transmission timestamps in isochronous data packets which relate to an absolute time as defined by a transmission clock, means for transmitting the data packets over a transmission network, means for receiving the data packets and detecting and temporarily recording the transmission timestamps therein, a receiver clock which is synchronised in frequency but not necessarily in absolute time with the transmission clock, means for storing the absolute time of the receiver clock when the first packet containing a transmission timestamp is received, means for adding a given time offset to the stored receiver clock time, the offset being greater than or equal to the maximum variation in time between successive received data packets, to define the output time of the first of the received data packets, means for

subtracting the value of the transmission timestamp in the first received data packet from the transmission timestamp in each subsequently received data packet, and means for adding the difference between the transmission timestamp of the present data packet and the transmission timestamp of the first data packet to the output time of the first data packet to define the output time of the present packet.

8. Apparatus as claimed in Claim 7 in which the means for inserting the transmission timestamps comprises a Cycle Time Register.

9. Apparatus as claimed in Claim 8 in which a plurality of transmitting and/or receiving devices each containing a Cycle Time Register are connected to an IEEE1394 bus and one of the Cycle Time Registers forms a Cycle Master which transmits a Cycle Start packet to the other Cycle Time Registers to maintain them all in synchronism.

10. Apparatus as claimed in Claim 9 in which the communication system comprises a plurality of IEEE1394 buses coupled by transmission bridge(s) wherein the Cycle Masters on each bus are synchronised in frequency.

11. Apparatus as claimed in Claim 10 in which the bridges are arranged to operate according to the IEEEp1394.1 standard

12. Apparatus as claimed in Claim 7 in which the communication system employs Asynchronous Transfer Mode.

13. Apparatus as claimed in Claim 7 in which the communication system is a Universal Mobile Telecommunications System (UMTS).

14. Apparatus as claimed in any of Claims 7 to 13 in which the data is audio and/or video signals encoded according to an MPEG standard.

15. Apparatus as claimed in Claim 14 in which the transmitting means includes an MPEG encoder.

16. Apparatus as claimed in Claim 14 or Claim 15 in which the receiver includes an MPEG decoder.